WHAT IS CLAIMED IS:

1. A method to screen for drugs which are useful in treating a person with a mutation in *HERG,* wherein said mutation is one which results in a cysteine at amino acid residue 572, an aspartic acid at amino acid residue 588, a valine at amino acid residue 614, an alanine at amino acid residue 630, or a mutation shown in Table 7, said method comprising:
a) placing a first set of cells expressing HERG with a mutation, wherein said mutation is a cysteine at amino acid residue 572, an aspartic acid at amino acid residue 588, a valine at amino acid residue 614, an alanine at amino acid residue 630, or a mutation shown in Table 7, into a bathing solution to measure a first induced K^+ current;
b) measuring said first induced K^+ current;
c) placing a second set of cells expressing wild-type HERG into a bathing solution to measure a second induced K^+ current;
d) measuring said second induced K^+ current;
e) adding a drug to the bathing solution of step (a);
f) measuring a third induced K^+ current of cells in step (e); and
g) determining whether the third induced K^+ current is more similar to the second induced K^+ current than is the first induced K^+ current, wherein drugs resulting in a third induced K^+ current which is closer to the second induced K^+ current than is the first induced K^+ current are useful in treating said persons.

2. The method of claim 1 wherein cells of said first set of cells are transfected with a mutant *HERG* wherein said mutant *HERG* encodes a HERG protein with a cysteine at amino acid residue 572, an aspartic acid at amino acid residue 588, a valine at amino acid residue 614, an alanine at amino acid residue 630, or a mutation shown in Table 7.

3. The method of claim 1 wherein cells of said second set of cells are transfected with nucleic acid encoding wild-type HERG.

4. The method of claim 1 wherein said first set of cells or said second set of cells is obtained from a transgenic animal.